

5.17 PALEONTOLOGICAL RESOURCES

This section evaluates the potential impacts on paleontological resources of the Palomar Energy Project. The assessment is based on archival and literature research and fieldwork at the power plant site, as well as the proposed water supply/wastewater return pipelines route. The Palomar facilities will be developed within Planning Area 1 of the proposed ERTC industrial park. Industrial park development activities prior to power plant construction will thoroughly disturb the ground surface at the power plant site and along approximately half of the water supply/wastewater pipeline route; as discussed below, the other half of the pipeline route is beneath existing paved streets. If paleontological resources are present (which is highly unlikely because of the geology of the area, as discussed below), they almost certainly would be encountered during the industrial park activities that will precede Palomar Energy facilities construction.

SDG&E will upgrade approximately 2,600 feet of natural gas pipeline at a location approximately one mile northeast of the plant site in downtown Escondido. Although no field investigation of the upgrade site was conducted, the literature and archival research covered the upgrade area. The gas pipeline upgrade would occur beneath paved streets in an area with a low potential for paleontological resources. No impacts on paleontological resources would be expected.

The following pages summarize existing paleontological resource data in the project area and vicinity; assess potential impacts to paleontological resources, and, as needed, identify mitigation measures to avoid or reduce project-related impacts wherever feasible.

As defined here, paleontological resources (i.e., fossils) are the remains and/or traces of prehistoric plant and animal life exclusive of humans. Fossil remains such as bones, teeth, shells, leaves, and wood are found in the geologic deposits (rock formations) within which they were originally buried. For the purposes of this report, paleontological resources can be thought of as including not only the actual fossil remains but also the collecting localities and the geologic formations containing those localities.

The analysis was prepared based on a review conducted of relevant published geologic reports (Larsen, 1948; Weber, 1963), unpublished geotechnical reports (Geocon, 1999), unpublished paleontological reports (Deméré and Walsh, 1993), and museum paleontological site records (Department of Paleontology, San Diego Natural History Museum). This approach was followed in recognition of the direct relationship between paleontological resources and the geologic deposits within which they are entombed. Knowing the geology of a particular area and the fossil productivity of particular geologic deposits that occur in that area, it is possible to predict where fossils will or will not be encountered. A field inspection of the overall ERTC industrial park site, including Planning Area 1 where the Palomar facility is proposed, was conducted on May 14, 2001 by Dr. Thomas A. Deméré, Curator of Paleontology of the San Diego Natural History Museum. This field inspection was conducted to verify the results of the

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literature and record searches. Dr. Deméré's technical report, as well as his professional qualifications, are provided in Appendix J.

5.17.1 Affected Environment

5.17.1.1 Physical Geologic Setting

The proposed Palomar facilities lie within the foothill region of the Peninsular Ranges. This region is characterized by low resistant granitic and gabbroic hills and intervening swales and valleys. Geologic conditions at the site consist of weathered to unweathered granitic rocks of the Green Valley Tonalite (GEOCON, 1999) overlain along Escondido Creek by a thin veneer of locally derived alluvium and colluvium. There are no outcrops of sedimentary bedrock on the site and the published and unpublished geologic reports confirm the absence of these types of rocks in the Escondido area.

Green Valley Tonalite

Green Valley Tonalite is a plutonic igneous rock unit that was formed during the early part of the Cretaceous Period approximately 120 million years ago. Its formation involved direct crystallization from molten magma under conditions of high temperature and pressure at a depth of some 10 miles within the Earth's crust. These extreme conditions are responsible for the total absence of prehistoric organic remains (i.e., fossils) in plutonic igneous rocks. The proposed power plant site is underlain entirely by weathered and unweathered rocks of the Green Valley Tonalite. This rock unit also underlies the northern portion of the proposed water line alignment.

Recent Alluvium and Colluvium

Recent alluvium and colluvium are modern sediment deposits that were formed through ongoing processes of local mass-wasting, erosion, and stream deposition associated with drainage conditions within the Escondido Creek watershed. Such deposits typically consist of loosely consolidated to friable sands, silts, and clays. The fact that these deposits are currently being formed in the Escondido Creek drainage underscores their youthful age and precludes the possibility for preservation of prehistoric organic remains (i.e., fossils). Both the southern portion of the proposed water line route and the entire natural gas pipeline route are underlain by Recent alluvium and colluvium.

5.17.1.2 Paleontological Resource Assessment

There are no records in the archives of the San Diego Natural History Museum of fossil localities occurring in the project area (see Figure 5.17-1). There are no known fossil localities within approximately five miles of the Palomar project site. This lack of fossil localities is understandable in light of the geologic conditions of the project site and vicinity. The plutonic igneous rocks of the Green Valley Tonalite are assigned a zero paleontological

Figure 5.17-1 Paleontological Resources

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sensitivity rating because of their magmatic origin. The sediment deposits of Recent alluvium and colluvium are assigned a low paleontological sensitivity rating because of their modern age.

5.17.2 Environmental Impacts

Direct impacts to paleontological resources occur when earthwork activities, such as grading and pipeline trenching, cut into the geologic deposits (formations) within which fossils are buried. These direct impacts are in the form of physical destruction of fossil remains. Since fossils are the remains of prehistoric animal and plant life they are considered to be nonrenewable. Such impacts can be significant and, under CEQA guidelines, require mitigation.

Impacts to paleontological resources are rated in this report from high to zero depending on the resource sensitivity of impacted geologic deposits. The specific criteria applied for each sensitivity category are summarized below.

- High significance: Impacts to high sensitivity geologic deposits.
- Moderate significance: Impacts to moderate sensitivity geologic deposits.
- Low significance: Impacts to low sensitivity geologic deposits (Recent alluvium and colluvium).
- Zero significance: Impacts to zero sensitivity geologic deposits (Green Valley Tonalite)

The following summarizes Palomar project impacts on paleontological resources in terms of the above criteria.

Development of the proposed power plant facility itself will result in impacts of zero significance, because the plant site is located in geologic deposits of zero paleontological sensitivity. Construction and operation of the water/wastewater pipelines along the proposed route will result in impacts of low significance: the portions of the route that are not within an area of zero sensitivity geologic deposits (Green Valley Tonalite), are within Recent alluvium and colluvium, which are considered of low paleontological sensitivity because of their modern origin. As shown on Figure 5.17-1, approximately three-quarters of the pipeline route is in the zero paleontological sensitivity area; the remainder is in a low sensitivity area. The proposed natural gas pipeline upgrade route also would be in the Recent alluvium and colluvium, and also would have impacts of low significance.

5.17.3 Mitigation Measures

Mitigation would be appropriate if the Palomar project would result in impacts of high or moderate significance. Because all Palomar project components would result in impacts of low or zero significance, no mitigation is necessary. Because of the extremely low likelihood of encountering paleontological resources during project implementation, no employee educational programs or contingency measures for mitigation are considered necessary and none are proposed.

5.17.4 Significant Unavoidable Adverse Impacts

No significant unavoidable adverse impacts on paleontological resources are anticipated as a result of project construction and operation.

5.17.5 Cumulative Impacts

There are two small power projects under development in the Palomar project vicinity: the CalPeak 49 MW power plant on Enterprise Street adjacent to the northern boundary of the Palomar site, and the 44 MW RAMCO power plant about 0.5 mile northwest of the Palomar site. Also, there is the ERTC industrial park project within which the Palomar site is located.

No significant cumulative paleontological impacts would be expected from these projects in combination with the Palomar project. The geologic conditions within which the different projects are located are considered of similar zero to low paleontological sensitivity to the Palomar site. As mentioned earlier in this section, the paleontological evaluation for the entire ERTC industrial park site, including the Palomar site, is provided as Appendix J of the AFC.

5.17.6 LORS Compliance

Design, construction, and operation of the Palomar project will be conducted in accordance with all LORS pertinent to paleontological resources. The applicable LORS are discussed in Section 6.4.17.

5.17.7 Involved Agencies and Agency Contacts

With the exception of the CEC, there are no agencies that have responsibility for administering LORS related to paleontological resources.

5.17.8 Permits Required and Permit Schedule

The project will not be developed on federal land, and thus no permits are required related to paleontological resources.

5.17.9 References

- Deméré, T. A. and S. L. Walsh. 1993. Paleontological Resources, County of San Diego. Prepared for the Department of Public Works. County of San Diego.
- GEOCON, Inc. 1999. Preliminary Geotechnical Study – Quail Hills, Escondido, California.
- Larsen, E.S., Jr. 1948. Batholith and Associated Rocks of Corona, Elsinore, and San Luis Rey Quadrangles, Southern California. Geological Society of America. Memoir 29.
- Weber, F.H., Jr. 1963. Geology and Mineral Resources of San Diego County. California Division of Mines and Geology. County Report 3.